

536,688

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number  
**WO 2004/070349 A2**

(51) International Patent Classification<sup>7</sup>:

G01N

(74) Agents: SHADDOX, Robert, C. et al.; Winstead Sechrest & Minick P.C., 400 North Ervay Street, P.O. Box 50784, Dallas, TX 75201 (US).

(21) International Application Number:

PCT/US2003/038141

(22) International Filing Date:

25 November 2003 (25.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/429,642 27 November 2002 (27.11.2002) US

(71) Applicant (for all designated States except US):  
**WILLIAM MARSH RICE UNIVERSITY** [US/US];  
6100 Main Street, Houston, TX 77843-1892 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BARRERA, Enrique, V.** [US/US]; 916 South Shepard, Houston, TX 77019 (US). **WILKINS, Richard** [US/US]; 2919 Adrienne Drive, College Station, TX 77845 (US). **SHOFNER, Meisha** [US/US]; 1801 Wiswall Avenue, Watervliet, NY 12189 (US). **PULIKKATHARA, Merlyn, X.** [US/US]; 7827 Barberton, Houston, TX 77036 (US). **VAIDYANATHAN, Ranjl** [IN/US]; 2301 N. Sarnoff Drive, Tuscon, AZ 85715 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

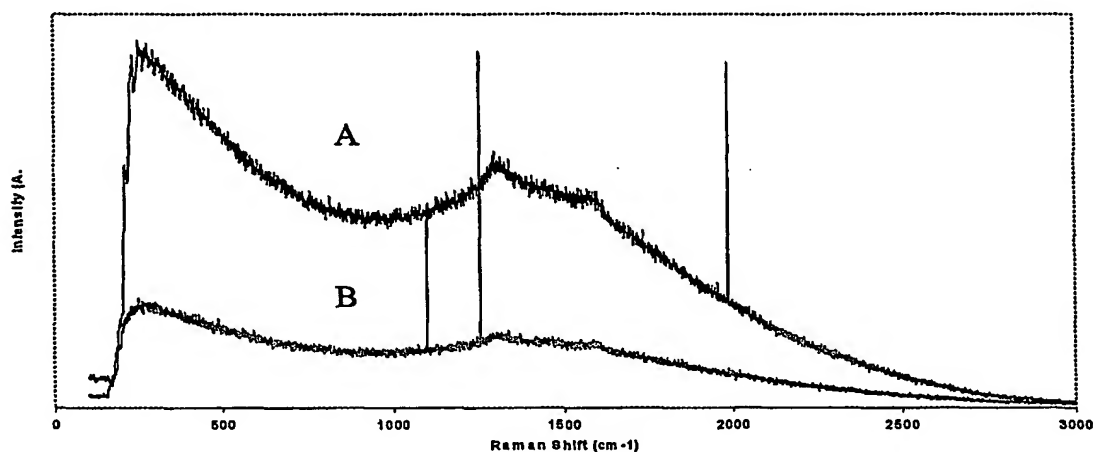
— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FUNCTIONALIZED CARBON NANOTUBE-POLYMER COMPOSITES AND INTERACTIONS WITH RADIATION



(57) Abstract: The present invention involves the interaction of radiation with functionalized carbon nanotubes that have been incorporated into various host materials, particularly polymeric ones. The present invention is directed to chemistries, methods, and apparatuses which exploit this type of radiation interaction, and to the materials which result from such interactions. The present invention is also directed toward the time dependent behavior of functionalized carbon nanotubes in such composite systems.

WO 2004/070349 A2